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10/785,176

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Kun-Hong Chen

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08/03/2006

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EXAMINER

NADAV, ORI

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/785,176 | CHEN, KUN-HONG | |
| | Examiner | Art Unit | |
| | Ori Nadav | 2811 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9,10 and 12-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,10 and 12-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-10 and 12-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the specification for a first metal layer, having a first and second end, wherein the direction extending from the first end to the second end is parallel to the substrate surface, wherein a plurality of conductive plugs parallel to extending direction of the first metal layer and on the first end of the first metal layer, as recited in claims 9, 14 and 18.

There is no support in the specification for a second metal line does not connect to the first plug, as recited in claim 19, since the second metal line and the first plug are electrically connected to each other.

There is no support in the specification for a second metal layer being isolated from the first metal layer, as recited in claim 9.

There is no support in the specification for a first plug and a second plug disposed on the first end of the first metal line, wherein the first plug is closer to the first end than the second plug, as recited in claim 18.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-10 and 12-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed limitations of a first metal layer, having a first and second end, wherein the direction extending from the first end to the second end is parallel to the substrate surface, wherein a plurality of conductive plugs parallel to extending direction of the first metal layer and on the first end of the first metal layer, as recited in claims 9, 14 and 18, are unclear as to how a plurality of conductive plugs can be parallel to extending direction of the first metal layer and on the first end of the first metal layer, since the plurality of conductive plugs are perpendicular to extending direction of the first metal layer.

The claimed limitation of a plurality of conductive plugs electrically connect the second metal layer, as recited in claims 9, 13, 14, 17 and 18, is unclear as to which element the plurality of conductive plugs electrically connect the second metal layer to.

The claimed limitation of a second metal layer being isolated from the first metal layer, as recited in claim 9, is unclear as to how the second metal layer can be isolated from the first metal layer, since the second metal layer is connected to the first metal layer with a plug.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9, 12-14 and 16-19, as best understood, are rejected under 35

U.S.C. 102(e) as being anticipated by Chang et al. (7,030,952).

Regarding claims 9, 14 and 18, Chang et al. teach in figure 14 and related text an interconnect structure, comprising:

a substrate 202 having a surface;

a dielectric layer 218 disposed on the surface of the substrate;

a first metal layer 214 disposed in the dielectric layer 218, having a first and second end, wherein the direction extending from the first end to the second end is parallel to the substrate surface;

a second metal layer 224 or 242 disposed on the dielectric layer, wherein the second metal layer is isolated from the first metal layer 214 by the dielectric layer; and

a plurality of conductive plugs 222 (see figure 8) parallel to extending direction of the first metal layer disposed in the dielectric layer and on the first end of the first metal layer to electrically connect the second metal layer, wherein the first metal

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layer and the second metal layer are a gate metal layer and a source/drain metal layer of a TFT device.

Regarding claim 18, Chang et al. teach in figures 8 and 14 and related text a first plug and a second plug C disposed on the first end of the first metal line 214, wherein the first plug is closer to the first end than the second plug.

Regarding claims 12 and 16, Chang et al. teach in figure 8 the number of conductive plugs is 2 and from 2 to 5.

Regarding claims 13 and 17, Chang et al. teach in figures 8 and 14 and related text the conductive plugs disposed on the first end of the first metal layer electrically connect one end of the second metal layer.

Regarding claim 19, Chang et al. teach in figure 14 and related text a second metal line 242 not connected to the first plug 222.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al.

Regarding claims 10 and 15, Chang et al. do not teach using the device for an LCD panel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Chang et al.'s device for an LCD panel, in order to improve the property and the reliability of the liquid crystal display (LCD) panel, when using the device in an application which requires an LCD panel.

Response to Arguments

Applicant's arguments with respect to claims 9-10 and 12-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference B is cited as being related to TFT comprising plugs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ori Nadav whose telephone number is 571-272-1660. The examiner can normally be reached between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Ori Nadav', is positioned above the printed name.

O.N.
7/29/06

ORI NADAV
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800